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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,796	07/15/2003	Francis X. Canning	CANNING.001CP2	7886

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EXAMINER
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DAY, HERNG DER

ART UNIT	PAPER NUMBER
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2128

NOTIFICATION DATE	DELIVERY MODE
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06/20/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcarter@kmob.com  
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<b>Office Action Summary</b>	<b>Application No.</b> 10/619,796	<b>Applicant(s)</b> CANNING, FRANCIS X.	
	<b>Examiner</b> HERNG-DER DAY	<b>Art Unit</b> 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/19/08, 5/12/08</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

**1.** This communication is in response to Applicant's Amendments and Response ("Amendment") to Office Action dated October 19, 2007, filed February 19, 2008.

**1-1.** Claims 2, 9, 21-23, and 33-36 have been amended. Claim 1 has been canceled. Claims 2-39 are pending.

**1-2.** Claims 2-39 have been examined and rejected.

### ***Information Disclosure Statement***

**2.** The information disclosure statement filed February 19, 2008, fails to comply with 37 CFR 1.98(a)(1), which requires the following: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement. The Cited documents No. 2-5 fail to comply with 37 CFR 1.98(a)(1), are not prior art, and the prosecution on the merits of each related application is not closed. Therefore, it has been placed in the application file, but the information referred to therein has not been considered as to the merits.

Furthermore, the listing of references in an information disclosure statement *letter* is not a proper information disclosure statement submission. 37 CFR 1.98(b) requires a list of all

patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, “the list ... must be submitted in a separate paper.” Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

### ***Claim Rejections - 35 USC § 112***

**3.** The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**4.** Claims 2-8, 15-16, and 25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

**4-1.** Independent claim 2 recites “a plurality of alpha sub-blocks” and “a plurality of beta sub-blocks” in lines 13 and 15 of the claim, which does not appear to have support in the original disclosure and the characteristics of the so-called “alpha sub-blocks” and “beta sub-blocks” have not been defined in the claim. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

**4-2.** Claims not specifically rejected above are rejected as being dependent on a rejected claim.

**5.** The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 22-24 and 33-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6-1. Claim 22 sets forth a computing system configured to “produce a compressed solution of a system of linear equations”. However, the relationship between the “system of linear equations” as recited in the preamble and the “interaction data” as recited in line 14 of the claim is unclear. If they are irrelevant, the limitation, “to use said factorization to solve said system of linear equations” as recited in lines 25-26 of the claim may not logically amount to “produce a compressed solution of a system of linear equations” as recited in the preamble.

6-2. Claim 23 recites the limitation “said computer program” in line 3 of the claim. There is insufficient antecedent basis for this limitation in the claim. For the purpose of claim examination with the broadest reasonable interpretation, the Examiner will read the first step of claim 23 as “loading a program into a computer from a computer readable medium encoded with ~~said computer program~~, said program;”.

6-3. Claims not specifically rejected above are rejected as being dependent on a rejected claim.

### ***Claim Rejections - 35 USC § 101***

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**8.** Claims 2-39 are rejected under 35 U.S.C. 101 because the inventions as disclosed in claims are directed to non-statutory subject matter.

**8-1.** Claims 2-39 are directed to the manipulation of abstract ideas of data compression or factorization of an interaction matrix by applying a decomposition. This claimed subject matter lacks a practical application of a judicial exception (law of nature, abstract idea, naturally occurring article/phenomenon) since it fails to produce a useful, concrete, and tangible result.

As stated in the MPEP 2106 (IV)(C), “Likewise, a claim that can be read so broadly as to include statutory and nonstatutory subject matter must be amended to limit the claim to a practical application. In other words, if the specification discloses a practical application of a section 101 judicial exception, but the claim is broader than the disclosure such that it does not require a practical application, then the claim must be rejected.”, “The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the tangible requirement does require that the claim must recite more than a 35 U.S.C. 101 judicial exception, in that the process claim must set forth a practical application of that judicial exception to produce a real-world result. *Benson*, 409 U.S. at 71-72, 175 USPQ at 676-77 (invention ineligible because had “no substantial practical application.”).” and “Thus, a claim that recites a computer that solely calculates a mathematical formula (see *Benson*) or a computer disk that solely stores a mathematical formula is not directed to the type of subject matter eligible for patent protection.” Also, as stated in the MPEP 2106.02, “If the “acts” of a claimed process manipulate only numbers, abstract concepts or ideas, or signals representing any of the foregoing, the acts are not being applied to appropriate subject matter. *Gottschalk v. Benson*, 409

U.S. 63, 71 - 72, 175 USPQ 673, 676 (1972). Thus, a process consisting solely of mathematical operations, i.e., converting one set of numbers into another set of numbers, does not manipulate appropriate subject matter and thus cannot constitute a statutory process.”

Specifically, as described in the specification in lines 19-20 of page 8, “The terms “sources” and “physical sources” are used herein to include all types of actual and/or fictitious sources.” Therefore, the claimed subject matter is directed to the manipulation of abstract ideas including those fictitious sources (e.g., a number, formula, expression, etc.,) and/or the effect of those fictitious sources. In other words, the claimed subject matter is so broad such that it does not provide or require a practical application. On the other hand, the claimed subject matter is seeking to patent substantially every application of the idea of factorization of an interaction matrix by applying a decomposition.

Furthermore, the claimed subject matter does not produce a tangible result because the claimed subject matter fails to produce a result that is limited to having real world value rather than a result that may be interpreted to be abstract in nature as, for example, a thought, a computation, or manipulated data. More specifically, the claimed subject matter includes producing, computing, and/or applying a decomposition. This produced result remains in the abstract and, thus, fails to achieve the required status of having real world value. In other words, the claimed subject matter is consisting solely of mathematical operations, i.e., converting one set of numbers into another set of numbers, representing sources (including fictitious sources) and/or the effect of those sources and thus nonstatutory because the manipulation on abstractions just can not produce a tangible result.

***Applicant's Arguments***

**9.** Applicant argues the following:

**9-1.** Response to Rejection of Claim 1 Under Nonstatutory Obvious-Type Double Patenting

(1) "Claim 1 has been canceled." (page 8, paragraph 3, Amendment)

**9-2.** Response to Rejection of Claim 1 Under 35 U.S.C. 102

(2) "Claim 1 has been canceled." (page 8, paragraph 4, Amendment)

**9-3.** Response to Rejection of Claims 1, 21, and 30-32 Under 35 U.S.C. 112

(3) "Claim 1 has been cancelled and Claim 21 has been amended to clarify the use of composite sources comprising a linear combination of more than one original basis function."  
(page 8, paragraph 6, Amendment)

**9-4.** Response to Rejection of Claims 2-8, 15-16, and 25 Under 35 U.S.C. 112 First Paragraph

(4) "Figure 13 shows that each block B has a sub-block containing non zero elements (shown as dark and, in this embodiment, corresponding to an alpha sub-blocks) and a sub-block containing zero elements (shown as white and, in this embodiment, corresponding to a beta sub-block)." (page 9, the last paragraph, through page 10, paragraph 1, Amendment)

**9-5.** Response to Rejection of Claims 9-14, 17-20, 22, 26-30, and 33-36 Under 35 U.S.C. 112 Second Paragraph

(5) Regarding claim 9, "Applicant has amended the claim to clarify." (page 10, paragraph 2, Amendment)

(6) "Applicant has amended claim 22 by replacing the first instance of "said interaction data" by "interaction data"." (page 10, paragraph 4, Amendment)



(7) Regarding claim 30, "Applicant has amended the claim". (page 10, paragraph 5, Amendment)

(8) Regarding claims 33-36, "These claims have been amended to recite "The computing system"." (page 10, paragraph 6, Amendment)

**9-6. Response to Rejection of Claims 2-39 Under 35 U.S.C. 101**

(9) "Applicant has amended the claims to clarify their use on a computer. This satisfies the requirement for a useful, concrete and tangible result. Applicant respectfully asserts that no further justification on this issue is required." (page 11, the last second paragraph, Amendment)

(10) "In summary regarding Examiner's statement (II), Applicant respectfully asserts that the claimed invention has numerous practical results as described above." (page 12, paragraph 2, Amendment)

(11) "Applicant asserts that the compression of the present application is analogous to the smooth waveform of Alappat since both result in an efficient method. Applicant further asserts that computations regarding a physical effect (whether an electric field, a pressure, or otherwise) are analogous to computing the condition of a patient's heart. Thus, Applicant asserts that, according to the MPEP, either of these alone provides a useful, concrete and tangible result." (page 12, the last paragraph, through page 13, paragraph 1, Amendment)

(12) "For example, Claim 2 recites "an interaction matrix describing physical effects due to electric charges." Applicant respectfully asserts that the referenced statement regarding fictitious sources does not make the term electric charges here so broad as to include all physical and non physical effects." (page 14, paragraph 1, Amendment)

(13) Every claim describes, shows, or produces a specific practical result (pages 14-15, Amendment)

***Response to Arguments***

**10.** Applicant's arguments have been fully considered.

**10-1.** Applicant's argument (1) is persuasive. The rejections of claim 1 on the ground of nonstatutory obviousness-type double patenting in Office Action dated October 19, 2007, have been withdrawn.

**10-2.** Applicant's argument (2) is persuasive. The rejections of claim 1 under 35 U.S.C. 102(b) in Office Action dated October 19, 2007, have been withdrawn.

**10-3.** Applicant's argument (3) is persuasive. The rejections of claims 1, 21, and 30-32 under 35 U.S.C. 112, first paragraph, in Office Action dated October 19, 2007, have been withdrawn.

**10-4.** Applicant's argument (4) is not persuasive. The recited "alpha sub-blocks" and "beta sub-blocks" do not appear to have support in the original disclosure and the characteristics of the recited "alpha sub-blocks" and "beta sub-blocks" have not been defined in the claim. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

**10-5.** Applicant's arguments (5) and (7)-(8) are persuasive. The rejections of claims 9-14, 17-20, and 26-30 under 35 U.S.C. 112, second paragraph, in Office Action dated October 19, 2007, have been withdrawn.

**10-6.** Regarding Applicant's argument (6), although replacing the first instance of "said interaction data" by "interaction data" may overcome the rejections of "insufficient antecedent

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basis”, however, the relationship between the “system of linear equations” and the amended “interaction data” is still unclear. In other words, if the “system of linear equations” is not related to the amended “interaction data”, the limitation, “to use said factorization to solve said system of linear equations” as recited in lines 25-26 of claim 22 may not logically amount to “produce a compressed solution of a system of linear equations” as recited in the preamble.

**10-7.** Applicant’s argument (9) is not persuasive. Applicant’s argument (9) is related to overcome the rejections of “software per se”. However, there exist no rejections of “software per se”. Furthermore, as stated in the MPEP 2106.02, “If the “acts” of a claimed process manipulate only numbers, abstract concepts or ideas, or signals representing any of the foregoing, the acts are not being applied to appropriate subject matter. *Gottschalk v. Benson*, 409 U.S. 63, 71 - 72, 175 USPQ 673, 676 (1972). Thus, a process consisting solely of mathematical operations, i.e., converting one set of numbers into another set of numbers, does not manipulate appropriate subject matter and thus cannot constitute a statutory process.” Specifically, the claimed subject matter is so broad and may consisting solely of mathematical operations, i.e., converting one set of numbers into another set of numbers, representing sources (including fictitious sources) and/or the effect of those sources and thus nonstatutory even the use on a computer is claimed.

**10-8.** Applicant’s arguments (10)-(11) are not persuasive. As stated in the MPEP 2106 (IV)(C), “Likewise, a claim that can be read so broadly as to include statutory and nonstatutory subject matter must be amended to limit the claim to a practical application. In other words, if the specification discloses a practical application of a section 101 judicial exception, but the claim is broader than the disclosure such that it does not require a practical application, then the

claim must be rejected.” Specifically, the claimed subject matter is directed to the manipulation of abstract ideas including those fictitious sources (e.g., a number, formula, expression, etc.,) and/or the effect of those fictitious sources. In other words, the manipulation on abstractions just can not produce a tangible result.

**10-9.** Applicant’s arguments (12)-(13) are not persuasive. For example, Applicant argued, “Claim 2 recites “an interaction matrix describing physical effects due to electric charges.””

However, the “*interaction matrix describing physical effects due to electric charges*” is itself an abstract idea because claim 2 does not involve (e.g., use, move, etc.) any electric charge.

Therefore, the recited “interaction matrix” is nothing more than an abstract idea intended to describe whatever the physical effects (e.g., electric field, magnetic flux, or something to be discovered, etc.) due to electric charges.

### ***Conclusion***

**11.** Applicant’s amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

**12.** Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Herng-der Day whose telephone number is (571) 272-3777. The Examiner can normally be reached on 9:00 - 17:30.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: (571) 272-2100.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kamini S. Shah can be reached on (571) 272-2279. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Kamini S Shah/

Supervisory Patent Examiner, Art Unit 2128

/Herng-der Day/  
Examiner, Art Unit 2128

June 13, 2008

